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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2625

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

✓ 10/068,940

Applicant(s)

SHINBATA, HIROYUKI

Examiner

Sath V. Perungavoor

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9,11,12 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9,11,12 and 22-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 10202005.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant(s) Response to Official Action

- [1] The response filed on October 3, 2005 has been entered and made of record.

Response to Arguments/Amendments

- [2] Presented arguments have been fully considered, but are rendered moot in view of the new ground(s) of rejection necessitated by amendment(s) initiated by the applicant(s).

Objection to the Drawings

Summary of Arguments:

Applicant amends Figure 4 to overcome the objection. Accordingly, applicant requests the withdrawal of the objection.

Examiner's Response:

Agreed. Examiner withdraws the previously made objection.

Objection to the Specification

Summary of Arguments:

Applicant defines 'X' and 'II' to take their conventional definition of product and multiplication, respectively. Accordingly, applicant requests the withdrawal of the objection.

Examiner's Response:

Agreed. Examiner withdraws the previously made objection.

Specification

Art Unit: 2625

[3] 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact.

The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph.

Examples of some unclear, inexact or verbose terms used in the specification are:

- Specification amendment inadvertently deletes a paragraph spanning from page 3, line 17 to page 4, line 7. Examiner notices that the applicant merely intended to amend one word, but lines 2-3 in page 2 of the specification amendment states "**has been deleted**". This poses a minor problem, since the amendment has been entered (i.e. formally the paragraph is deleted). Examiner requests the applicant to file a specification amendment to replace the deleted paragraph to keep the specification consistent. Applicant is invited to contact the Examiner, if further clarification is needed.

Claim Objections

[4] Claims 1, 5 and 12 are objected to because of the following informalities: "on a side" should be "on one side". Following is a list of suggested corrections:

- In claim 1, Line 7, after "on" and before "side", delete "a" and add "one"
- In claim 5, Line 5, after "on" and before "side", delete "a" and add "one"
- In claim 12, Line 7, after "on" and before "side", delete "a" and add "one"

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2625

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[5] Claims 1, 3-5, 9, 11-12 and 22-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Young et al. (“Young”) [US 6,625,303].

Regarding claim 1, Young meets all the claim limitations, as follows:

An image processing apparatus for processing a photographed image of an object, said apparatus comprising [Figure 9]: an object extracting portion configured to extract an object region of the object from the photographed image [Column 8 Lines 14-15]; and an analyzing portion configured to determine a region from which a statistics (i.e. eigenvector) value is calculated on a basis of both a pixel which is on a contour on a side (i.e. left edge point) in the object region and shows a maximum value and a pixel which is on a contour on the other side (i.e. right edge point) in the object region and shows a maximum value [Column 8 Lines 36-39 and 47-51]; and a gradation conversion portion configured to execute a gradation conversion processing on the photographed image based on the statistics value [Column 1 Lines 35-45; Column 8 Lines 2-7].

Regarding claim 3, Young meets all the claim limitations, as follows:

An image processing apparatus according to claim 1, wherein said object extracting portion extracts the object based on a through region and a region adjoining the

through region in a predetermined width [*Column 8 Lines 14-15: Edge filtering involves detecting the transitions from the through (i.e. light) region to a region adjoining the through (i.e. dark) region. All images that are processed have a predetermined width (i.e. resolution is not infinite in the stored images).*].

Regarding claim 4, Young meets all the claim limitations, as follows:

An image processing apparatus according to claim 1, wherein the photographed image is an image obtained by radiographing of the object [*Column 7 Lines 10-20*].

Regarding claim 5, Young meets all the claim limitations, as follows:

An image processing apparatus according to claim 1, wherein said analyzing portion determines the region on a basis of a pixel value on a line segment connecting a pixel showing a maximum value on a contour on a side of the object region and a pixel showing a maximum value on a contour on the other side of the object region [*Column 8 Lines 25-26*].

Regarding claim 9, Young meets all the claim limitations, as follows:

An image processing apparatus according to claim 1, wherein said analyzing portion determines the region for which the statistics value is extracted on a basis of a pixel value on a contour in the object region which has been smoothed [*Column 11 Line 65*].

Regarding claim 11, Young meets all the claim limitations, as follows:

An image processing system in which a plurality of apparatuses are connected with each other in a state capable of communicating with each other, wherein the system has each function of the image processing apparatus according to claim 1 [*Figure 9*].

Regarding claim 12, all claimed limitations are set forth and rejected as per discussion for claim 1.

Regarding claims 22, Young meets all the claim limitations, as follows:

A computer-readable storage medium, said medium storing a program configured to make a computer realize functions of the image processing apparatus according to claim 1 [*310 on Figure 9*].

Regarding claims 23, Young meets all the claim limitations, as follows:

A computer-readable storage medium, said medium storing a program configured to make a computer realize functions of the image processing system according to claim 11 [*310 on Figure 9*].

Regarding claims 24, Young meets all the claim limitations, as follows:

A computer-readable storage medium, said medium storing a program configured to make a computer execute steps of the image processing method according to claim 12 [*310 on Figure 9*].

Regarding claims 25, Young meets all the claim limitations, as follows:

Art Unit: 2625

An image processing apparatus according to claim 1, wherein the statistics value is an average value [*Column 9 Line 30: Mean-square error meets the limitation, claim limitations do not show what values are averaged, hence the limitation is very broad.*].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[6] Claim 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Young et al. ("Young '590") [US 6,249,590].

Regarding claims 25, Young meets the claim limitations as set forth in the discussion for claim 1.

Young does not explicitly disclose the following claim limitations:

An image processing apparatus according to claim 1, wherein the object region includes a cervical spine region.

However, in the same field of endeavor Young '590 discloses the deficient claim limitations, as follows:

An image processing apparatus according to claim 1, wherein the object region includes a lumbar spine region [*Column 6 Lines 35-47*].

Young and Young '590 are combinable because they are from the same field of bone pattern detection.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Young with Young '590 to apply the pattern detection method of claim 1 to the cervical spine, the motivation being to properly locate the spine region for optimal tone adjustment [*Young '590: Column 4 Lines 1-3*]. Furthermore, the cervical spine and the lumbar spine have similar structures as it pertains to image processing; hence there is no significant image processing difference.

Conclusion

[7] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2625


Contact Information

[8] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Group Art Unit: 2625
Telephone: (571) 272-7455
Date: October 21, 2005


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PRIMARY EXAMINER